

## PATENT COOPERATION TREATY

From the  
INTERNATIONAL SEARCHING AUTHORITY

REC'D 03 MAY 2005

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To:

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WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

Date of mailing  
(day/month/year) 14 APRIL 2005 (14.04.2005)

Applicant's or agent's file reference  
OP04-1091

FOR FURTHER ACTION

See paragraph 2 below

International application No.

**PCT/KR2005/000045**

International filing date (day/month/year)

**07 JANUARY 2005 (07.01.2005)**

Priority date(day/month/year)

08 JANUARY 2004 (08.01.2004)

International Patent Classification (IPC) or both national classification and IPC

**IPC7 A61K 31/00**

Applicant

**HWANG, Jae-Kwan et al**

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.  
For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/KR



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**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/KR2005/000045

**Box No. I Basis of this opinion**

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ This opinion has been established on the basis of a translation from the original language into the following language \_\_\_\_\_, which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).

2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:

a. type of material

- ☐ a sequence listing  
☐ table(s) related to the sequence listing

b. format of material

- ☐ in written format  
☐ in computer readable form.

c. time of filing/furnishing

- ☐ contained in the international application as filed.  
☐ filed together with the international application in computer readable form.  
☐ furnished subsequently to this Authority for the purposes of search.

3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4. Additional comments:

**WRITTEN OPINION OF THE  
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**Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

**1. Statement**

|                               |        |          |     |
|-------------------------------|--------|----------|-----|
| Novelty (N)                   | Claims |          | YES |
|                               | Claims | 1-9      | NO  |
| Inventive step (IS)           | Claims |          | YES |
|                               | Claims | 1-9      | NO  |
| Industrial applicability (IA) | Claims | 1-3, 7-9 | YES |
|                               | Claims |          | NO  |

**2. Citations and explanations :**

The following documents are referred to in this report:

D1: WO 88/3806 A1

D2: EP 297733 A2

The present invention relates to an antibiotic composition against *Propionibacterium* acnes, *Staphylococcus epidermis* and *Staphylococcus aureus* which induce acne, comprising lignan compounds represented by formula (I) and their use as antibacterial and treatment of acne.

D1 discloses a composition of catecholic butanes and the use thereof in treatment of disorders of the skin including acne.

D2 relates to compositions useful in treatment of solid tumors of the skin, and in treatment of other disorders of the skin e.g. acne comprising catecholic butane.

**1. Novelty**

The general formula of catecholic butane described in D1 and D2 include the definition of lignan compounds in the present invention. D1 and D2 specifically disclose 1,4-bis(3,4-dihydroxyphenyl)-2,3-dimethylbutane which is the same compound as the compound of the present invention wherein R1 and R2 = hydroxy group, R3 = 3,4-dihydroxyphenyl group in formula (I). Moreover, D1 and D2 disclose the antibacterial property against *Propionibacterium* acnes and *Staphylococcus aureus* of catecholic butane compounds and teach their use as an anti-acne composition.

Therefore, the present invention is considered to lack novelty over D1 and D2.

**2. Inventive Step**

Since the novelty of the present invention is negated by D1 and D2, the inventive step of the present invention cannot be acknowledged, either. (Continued on Supplemental Sheet.)

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**Supplemental Box**

In case the space in any of the preceding boxes is not sufficient.  
Continuation of :

**3. Industrial Applicability**

For the assessment of the presently worded claims 4-6 on the question whether those subject-matter is industrially applicable, no unified criteria exist in the PCT. The patentability under national patent law can also be dependent on the formulation of the claims. The KIPO, for example, dose not recognize the subject-matter of claims to the use of a compound in medical treatment as being industrially applicable.